# **Loss Mitigation Grant Program Wind Resistive Device (WRD) Product Evaluation**

The product as described herein has been evaluated by the Department of Commerce and Consumer Affairs (DCCA) for compliance with the technical requirements for wind resistive devices installed in single or multi-family residential dwellings. Installation costs of approved products are partially reimbursable under the provisions of the Loss Mitigation Grant Program. The results of the product evaluation are presented in the following report.

## 1.0 Product Information

#### 1.1 Product Name:

"Armor Screen Series 2000" Flexible Wind Abatement System

### 1.2 Description:

Armor Screen is a flexible, porous impact protection system produced from a polypropylene, woven monofilament geotextile fabric. Armor Screen acts as a screen that can be placed quickly and temporarily in the event of a storm at a minimum specified distance from a glazed opening to prevent debris impact. Numerous possible installation assemblies are available.

# 1.3 Category:

Submitted for evaluation as a WRD option 3- Exterior opening protection

## 1.4 Submitted By:

Hawaii Security Shutters, Inc. 4309 Palahinu Place Honolulu, HI 96818 Ph: (808) 422-0707

Fax: (808) 422-1311

#### a. Manufacturer:

Armor Screen Corporation 2001-H North Congress Avenue Riviera Beach, FL 33404

## b. <u>Technical Representative:</u>

Dan Reames

Ph: (877) 237-2337 Fax: (561) 841-8892 danr@armorscreen.com

#### c. Local Sales Representative:

T.R. Bongartz

Hawaii Security Shutters, Inc.

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## 2.0 Product Evaluation

# 2.1 Wind Loads:

"Armor Screen Series 2000" Flexible Wind Abatement System has been calculated to sustain maximum wind pressures as indicated on sheet 2 of 8, of drawing No. AS-001 (see section 2.4 Substantiating Data). Maximum span and anchor spacing shall be as indicated on this sheet for the required design wind pressures.

No test reports have been submitted at this time for evaluation of performance with ASTM E1996. No test reports have been referenced in either drawing No. AS-001 or Miami-Dade NOA No. 07-0424.04.

# 2.2 Impact Resistance:

No test reports have been submitted at this time. No missile impact tests have been referenced in either drawing No. AS-001 or Miami-Dade NOA No. 07-0424.04. However, Miami-Dade NOA No. 07-0424.04 does state this product has a Large and Small Missile Impact Rating.

## 2.3 Installation:

Installation shall be performed strictly in accordance with the details indicated on sheets 2 through 8 of 8 of drawing No. AS-001. Minimum glass separation shall be as indicated on sheet 2 of 8.

# 2.4 **Substantiating Data:**

- a. Drawing Number AS-001, titled "Armor Screen Series 2000, Flexible Wind Abatement/ Impact Protection System", sheets 1 through 8 of 8, prepared, signed and sealed by Thomas M. Kelaher, P.E. (FL License No. 40159) last revision dated 11/25/2003
- b. Miami-Dade County, Building Code Compliance Office Notice of Acceptance (NOA) No. 07-0424.04, Expiration Date: 01/07/2009

# 3.0 Findings

Insufficient test data has been submitted at this time. Therefore, approval of the "Armor Screen Series 2000", Flexible Wind Abatement/ Impact Protection System as an acceptable WRD is conditional upon additional information to be submitted under the requirements of the loss mitigation grant program.

No wind Static or Cyclic wind pressure or Missile impact test results have been submitted or referenced in the substantiating documentation. The Testing and Test Report Minimum Information Requirements are given in Section 4.0 of the Hawaii Department of Commerce and Consumer Affairs, "Submittal Requirements for Product Evaluations".

Anchorage details have not been provided for single wall construction common to Hawaii. Additional data must be submitted for WRD approved use on this type of construction. Also, wood connection anchorage schedules are given only for attachments to Southern Yellow Pine members and not the more commonly used (in Hawaii) Douglas fir. Although the allowable shear and pullout loads on these two wood types are similar, the capacities of the Douglas fir attachments are slightly less, which could require

decreased fastener spacing or increased fastener size. Provide an alternative or approved connection schedule for attachments to Douglas fir, for WRD acceptable use on wood construction.

# 3.1 Limitations:

- a. Due to omitted test result data the "Armor Screen Series 2000", Flexible Wind Abatement/ Impact Protection System is conditionally approved as an acceptable WRD, subject to these limitations:
- b. Minimum test report information must be submitted for verification.
- c. Submit additional details and test data for approved use on single wall construction.
- d. Submit alternative or approved connection schedule for use on Douglas fir wood framing.

Gary Y. K. Chock, S.E. Product Examiner May 14, 2008

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